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EXAMINER	
NGUYEN, ALAN V	

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2662	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/611,733	Applicant(s) SCHMIDL ET AL.	
	Examiner Alan Nguyen	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-16 and 19-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Kostic et al (US 6,549,784) hereinafter Kostic.

Regarding **claim 1** Kostic discloses a method of controlling wireless communication from a first device to second device via a wireless communication link **(see figure 6)**, comprising:

receiving a frequency hopping pattern comprising a plurality of frequencies **(col 5 lines 30-44 discloses base station 102 sending frequencies allocated to the hopping pattern to terminal station 104)**;

obtaining information indicative of communication quality provided by one of said frequencies after the step of receiving **(column 9, lines 9-34 discloses a plurality of terminal stations 402 that sends their frequency quality measurements to base station 404. Using both the frequency quality measurements obtained by base station 404 and the frequency quality measurements received from the plurality of terminal stations 402, quality measurement module 424 determines a quality**

value for each system frequency. These steps occur after the hop pattern has been received by terminal stations 104),

selecting a frequency from the plurality of frequencies on which to transmit a selected communication to the second device in response to the information indicative of communication quality **(column 9, lines 35-41 discloses quality measurement module 424 then analyzes each frequency hop pattern using the rank information to identify terminal station frequency hop patterns in which one or more frequencies should be replaced with system frequencies having higher quality values (lower interference levels))**; and

transmitting the selected communication to the second device via the wireless communication link on the selected frequency at a time when the selected frequency is specified by the frequency hopping pattern for a transmission by the first device **(column 9, lines 35-50 discloses how the base station creates the hoping pattern based on quality measurements of each frequency. Column 5, lines 25-30 discloses the process in transmitting the selected communication. Each frequency dwell within this frequency hop pattern has a duration of 10 ms. The system frequency in use during each frequency dwell of this frequency hop pattern may be determined using FIG. 2. For example, the 820 MHz system frequency is modulated with voice and/or data information during the first frequency dwell of this frequency hop pattern).**

Regarding **claims 19 and 25** Kostic discloses an apparatus and a frequency hopping wireless communication system comprising **(see figure 6)**:

a first frequency hopping wireless communication device **("base station"; figure 6, element 604)**;

a second frequency hopping wireless communication device for communication with said first device via a wireless communication link **("terminal station"; figure 6, element 602)**, said second device arranged to receive a plurality of frequencies **(column 5, lines 34-38 discloses that the base station selects the frequencies which will be used to communication with a particular terminal station)**;

said second device including a wireless communication interface for communicating with said first device via a wireless communication link on the plurality of frequencies according to a predetermined frequency hopping pattern **(see figure 6; column 5, lines 8-12 discloses the base station and terminal communicate through frequencies on a hopping pattern. Column 9, lines 35-41 discloses that the pattern is predetermined)**, and

a scheduler **("frequency hop adaptation module" element 426)** for selecting a frequency a plurality of frequencies on which to transmit a selected communication to said first device **(column 9, lines 35-41 discloses quality measurement module 424 then analyzes each frequency hop pattern using the rank information to identify terminal station frequency hop patterns in which one or more frequencies should be replaced with system frequencies having higher quality values (lower interference levels))**, said scheduler including an input for receiving information

indicative of communication quality provided by one of said frequencies **(column 9, lines 9-16 discloses a plurality of terminal stations 402 that sends their frequency quality measurements to base station 404. Using both the frequency quality measurements obtained by base station 404 and the frequency quality measurements received from the plurality of terminal stations 402, quality measurement module 424 determines a quality value for each system frequency)**,

said scheduler responsive to said information for selecting the frequency on which to transmit a selected communication said wireless communications interface coupled to said scheduler and responsive thereto for transmitting the selected communication to said first device on the selected frequency at a time when the selected frequency is specified by the frequency hopping pattern for a transmission by the first device **(column 9, lines 35-50 discloses how the base station creates the hoping pattern based on quality measurements of each frequency. Column 5, lines 25-30 discloses the process in transmitting the selected communication. Each frequency dwell within this frequency hop pattern has a duration of 10 ms. The system frequency in use during each frequency dwell of this frequency hop pattern may be determined using FIG. 2. For example, the 820 MHZ system frequency is modulated with voice and/or data information during the first frequency dwell of this frequency hop pattern)**.

Regarding **claims 2-4, 20, and 21** Kostic discloses where the obtaining step includes obtaining information indicative of communication quality provided by the

selected frequency and determining that the selected frequency provides better communication quality than said one frequency **(Kostic discloses on column 9, lines 35-45 where quality measurement module 424 then analyzes each frequency hop pattern using the rank information to identify terminal station frequency hop patterns in which one or more frequencies should be replaced with system frequencies having higher quality values (lower interference levels). Claim 2 discloses that the one frequency is included in the hopping pattern. According to explanation above, if said one frequency had a high quality measurement, it would be included in the hopping pattern for communications between the base station and a terminal. Claim 3 discloses that the selected frequency is not the said one frequency. According to the explanation above, if said one frequency has a lower quality measurement, it would not yet be used as the said selected frequency)**.

Regarding **claims 5 and 22** Kostic discloses where the transmission for which the selected frequency is specified by the frequency hopping pattern is a transmission from the first device to a third device **(column 9, lines 50-67 discloses a method that assigns a score to each terminal based on the quality of the frequencies in its hopping pattern. A terminal with a lower score (lower quality) would then get a new pattern with higher quality frequencies. If the selected frequency is of high quality, and the third device has a low score, then said selected frequency would be inserted into the hopping pattern of said third device)**.

Regarding **claims 6, 7, 23, and 24** Kostic discloses where the selected frequency is said one frequency **(Kostic discloses on column 9, lines 35-45 where quality measurement module 424 then analyzes each frequency hop pattern using the rank information to identify terminal station frequency hop patterns in which one or more frequencies should be replaced with system frequencies having higher quality values (lower interference levels). Claim 6 and 7 discloses that the selected frequency is the one frequency. According to explanation above, if said one frequency had a high quality measurement, it would be selected for use in the hopping pattern for communications between the base station and a terminal).**

Regarding **claim 8** with the features of parent claim 1 addressed above, Kostic discloses where the obtaining step includes obtaining information indicative of communication quality provided by a plurality of the frequencies of the frequency hopping pattern **(column 9, lines 7-9 discloses that all system frequencies available to the communications system are analyzed for quality. Column 9, lines 35-41 discloses quality measurement module 424 then analyzes each frequency hop pattern using the rank information to identify terminal station frequency hop patterns in which one or more frequencies should be replaced with system frequencies having higher quality values (lower interference levels))**

Regarding **claims 9-12** Kostic discloses where the step of transmitting a data packet includes the first device transmitting the data packet to the second device at said time and also at a time when the frequency hopping pattern specifies a further

frequency other than the selected frequency for a further communication involving the first device **(figure 2 shows a hopping pattern for communication between the base station and a terminal. Further, column 5, lines 25-30 discloses the process in transmitting the selected communication. Each frequency dwell within this frequency hop pattern has a duration of 10 ms. The system frequency in use during each frequency dwell of this frequency hop pattern may be determined using FIG. 2. Regarding claims 11 and 12 column 5, lines 8-15, and column 9, lines 7-14, discloses the base station and terminal uses a frequency hopping pattern for 2-way communication, and that the terminal may be required at that time to send quality measurements back to the base station. Further communication may be that the base station continues to send packets to the terminal, and if requested the terminal will transmit to the base station)**.

Regarding **claims 13-15 and 26** Kostic discloses including the second device transmitting a further communication to the first device via the wireless communication link on the selected frequency in response to the selected communication **(column 9, lines 35-45 discloses where quality measurement module 424 then analyzes each frequency hop pattern using the rank information to identify terminal station frequency hop patterns in which one or more frequencies should be replaced with system frequencies having higher quality values. Kostic further discloses on column 5, lines 23-26 that the frequency hop pattern will repeat after a certain amount of time. It is possible that same frequencies are used for the next hop pattern for the same terminal/base station link, if the frequency still has a**

desirable quality value for the same link. According to the explanation above, when the hop pattern repeats itself again, the terminal station can transmit a further communication to the base station through that same selected frequency. Regarding claim 14 if said one frequency had a high quality measurement, it would be selected for use in the hopping pattern. Regarding claim 26, after the pattern is repeated further communication from the base station to the terminal can de done through said selected frequency).

Regarding **claims 16 and 27** Kostic discloses where said one frequency is specified by the hopping pattern for transmission of the selected communication, the first device operable for transmitting a further communication to said second device via the wireless communication link on said one frequency, said scheduler having a further input and responsive to said further input for selecting said one frequency for transmission of the selected communication if the communication quality associated with said further communication exceeds the communication quality threshold **(column 10, lines 59-65 discloses an analysis method referred to herein as the "threshold based frequency dwell ranking method" is employed. The rank of each frequency within each frequency dwell is compared to a predetermined threshold value. Frequencies having rank numbers below the threshold value remain in use during their current frequency dwell and are removed from the pool of available replacement system frequencies. According to the disclosed information above, if the quality of the frequency in that frequency dwell exceeds the threshold, the same frequency will be reused in that dwell. A further communication from the**

base station to the terminal or vice versa can occur when the hopping pattern is repeated, as disclosed on column 5, lines 23-26).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 17, 18, and 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kostic in view of Brown et al (US 6,366,622) hereinafter Brown.

Regarding **claims 17, 18, and 28-31** Kostic fails to expressly disclose where the wireless communication link is a Bluetooth ACL and/or SCO links, and the first and second devices are, respectively, Bluetooth master and slave devices.

Brown discloses a method and apparatus for wireless communications that uses the Bluetooth technology that supports two types: SCO which is used for voice (connection-oriented), and ACL which is used packet data (connectionless) **(see column 6, lines 3-8)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kostic's wireless system to utilize the two Bluetooth types: SCO and ACL, as taught by Brown. The motivation is a more versatile and capable wireless system since Bluetooth is a global specification for wireless connectivity. It is based on a low-cost, short-range radio link that enables wireless

communication of data and voice and facilitates protected ad hoc wireless connections for stationary and mobile communication environments. Bluetooth offers a solution that yields rugged wireless connectivity, as explained by Brown on column 3, lines 10-20.

Response to Arguments

2. The response for the rejection under 35 U.S.C. 102(e) has been considered but does not overcome the rejection for the following reasons: Regarding **claims 1-16** Applicant has stated that the Kostic reference fails to show the steps of obtaining information indicative of communication quality provided by one of said frequencies after the step of receiving, and that Kostic fails to select frequencies from the frequency hop pattern in response to information indicative of communication quality. Applicant states the reference fails to disclose the steps of receiving a frequency hopping pattern comprising a plurality of frequencies and that the frequency selection disclosed by Kostic leads to a new frequency hop pattern. The Examiner respectfully disagrees. referring to col 5 lines 31-45 and looking at figure 1, each base station 102 controls which of the frequencies are allocated to the frequency hop pattern used to communicate with each terminal station 104 within that base station's cell 110. First, the base station 102 selects the frequencies which will be used to communicate with a particular terminal station 104. The base station then informs the terminal station 104 of the selected frequencies by transmitting a message to that terminal station using predetermined designated control frequencies. Similarly, to preclude terminal stations 104 within the same cell from simultaneously transmitting voice and/or data information

using the same frequency, each base station 102 controls the sequence of frequencies within the frequency hop patterns used by terminal stations 104 within that base station's cell 110. A hop pattern containing a plurality of frequencies is sent to the terminal. Referring to col 9 lines 23-34 quality information is then obtained from the frequencies in the pattern.

Regarding **claims 19-27** Applicant states the reference fails to disclose transmitting the selected communication to the further apparatus on the selected frequency at a time when the selected frequency is specified by the frequency hopping pattern. Referring to col 5 lines 31-45 and col 9 lines 23-34. Terminal 104 receives a hopping pattern and later on information indicative of quality is measured. The frequency is then selected from the frequencies based on the quality information. Furthermore, column 5, lines 25-30 discloses the process in transmitting the selected communication. Each frequency dwell within this frequency hop pattern has a duration of 10 ms. The system frequency in use during each frequency dwell of this frequency hop pattern may be determined using FIG. 2. For example, frequency 820MHz is modulated with voice and/or data information during the first frequency dwell of this frequency hop pattern. Hop patterns are assigned for both uplink and downlink transmissions (col 9 lines 45-50). It is concluded that the Kostic reference taken in its entirety continues to anticipate claims 1-16 and 19-27 and in combination with the Brown reference continue to read on the claims through obviousness. Therefore the claims are not allowed over the prior art

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Nguyen whose telephone number is 571-272-3089. The examiner can normally be reached on 9am-6pm ET, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AVN
August 26, 2004

JOHN PEZZLO
PRIMARY EXAMINER